

REMARKS

The Office Action mailed 18 February 2009, has been received and its contents carefully noted. Claims 12, 14-18, 20, 24-28 and 31-34 were rejected and claims 1-10, 13, 21, 29 and 30 were withdrawn from consideration. Claims 11, 19, and 22-23 were previously canceled. By this Response, claim 35 has been added. Support for the amendment may be found in the specification and claims as originally filed. See, for example, paragraphs [0013] and [0031] of the application as published. No statutory new matter has been added. Therefore, reconsideration and entry of the claims, as amended, are respectfully requested.

Rejection under 35 U.S.C. 103(a)

The Examiner rejected claims 12, 14-15, 17-18, 22, 24-28 and 32-34 under 35 U.S.C. 103(a) as being unpatentable over Guerret (WO 0071501, using US 6,657,043 as a translation) in view of Fischer (US 6,239,226) and Coran (US 4,473,683). The Examiner also rejected claims 16 and 31 as being unpatentable over Guerret in view of Fischer and further in view of Pourallmady (EP 0947527). The Examiner rejected claim 20 as being unpatentable over Guerret in view of Fischer and in further view of Billovits (WO 9852978).

In the Office Action on page 3, the Examiner clarified that Fischer is relied on for the disclosure that their block copolymers are compatibilizers and stated that “for this reason alone those skilled in the art would assume compatibility with any matrix ...”.

Applicants respectfully submit that the Examiner correctly states that Fischer discloses that their block copolymers are suitable as impact modifiers in thermoplastic molding compositions. However, it appears that the Examiner neglects the fact that Fischer’s novel block copolymers are tri-block copolymers, i.e. A-B-A or B-A-B, and that these triblock copolymers themselves are indicated as being suitable as impact modifiers. Nowhere does Fischer teach or suggest that a homopolymer (e.g. A block) itself must be compatible with a given thermoplastic molding composition. In other words, Fischer does teach that their inventive block copolymer, e.g. A-B-A, may be added as an impact modifier to a thermoplastic molding composition. However, Fischer does not teach or suggest that A block itself (or B block itself) must be compatible with the thermoplastic molding composition to which A-B-A is added. Therefore,

Fischer does not teach or suggest that A is of the same nature as or compatible with the brittle matrix in accordance with the instant invention as claimed.

The statements by Fischer that a copolymer, e.g. A-B-A, is suitable as an impact modifier or can be added into a composition does not necessarily mean that one of the blocks of the copolymer must be compatible with the composition. Although Fischer states that their “novel block copolymers are notable for high impact strengths” at column 4, line 36, Fischer does not provide any definition for “impact modifier” or what characteristics are necessary to be considered to be an impact modifier. Thus, a block copolymer which modifies, e.g. weakens, the impact strength of a composition may be included in the scope and meaning of “impact modifier” according to the disclosure of Fischer.

Consistent with this understanding, a tri-block copolymer according to Fischer, e.g. PMMA-*b*-PBA-*b*-PMMA triblock copolymer (blocks are: PMMA = polymethyl methacrylate; PBA = polybutyl acrylate, based on the disclosure at col. 1, lines 37-59), can be blended with a polystyrene thermoplastic (col. 4, lines 43-64). However, the blended composition will have poor mechanical properties, e.g. weakened impact strength. Thus, the PMMA-*b*-PBA-*b*-PMMA triblock copolymer is an “impact modifier”. However, nowhere does Fischer teach or suggest that one of the blocks, e.g. PMMA, must be the same as or compatible with the composition it is added to in order to strengthen, i.e. reinforce, the composition against impact.

Similarly, another tri-block copolymer according to Fischer is PS-*b*-PBA-*b*-PS (PS = polystyrene; PBA = polybutyl acrylate). PS-*b*-PBA-*b*-PS can be blended with a PMMA thermoplastic matrix. However, the blended composition will have weakened impact strength. Thus, according to Fischer PS-*b*-PBA-*b*-PS is an “impact modifier”. However, nowhere does Fischer teach or suggest that one of the blocks, e.g. PS, must be the same as or compatible with the composition it is added to in order to strengthen, i.e. reinforce, the composition against impact.

Therefore, Fischer does not teach or suggest that a block, e.g. A itself, of a copolymer must be the same as or compatible with the matrix to which it is added.

As correctly noted by the Examiner, Guerret discloses an ABA block copolymer where B block is butyl acrylate and A block is styrene, which falls within the tri-block copolymers described in Fischer, e.g. PS-*b*-PBA-*b*-PS. The Examiner also correctly notes that Guerret is silent on the mixing of such a copolymer with a brittle matrix. Thus, the Examiner relies on Fischer for the motivation that one of ordinary skill in the art would assume that such a copolymer would be compatible with any and all matrices.

Applicants respectfully submit that, as noted above, when PS-*b*-PBA-*b*-PS is blended with a brittle matrix such as PMMA, the impact strength of the blended composition is less than that of PMMA itself. The present inventors discovered that in order for the brittle matrix to be reinforced against impact, one of the blocks of the copolymer must be the same as or compatible with the brittle matrix. This requirement is set forth in the instant specification, by way of examples of preferred embodiments, at paragraph [0014] of the published application.

Although one skilled in the art might be able to randomly select a copolymer that has a block that is the same as or compatible with the matrix to which the copolymer is added, such a random happenstance is not sufficient as the requisite motivation for a prima facie case of obviousness. In particular, because Fischer (or any of the other cited documents) does not teach or suggest that one of the blocks of the copolymer must be the same or compatible with the matrix to which the copolymer is added in order to reinforce the matrix against impact, one of ordinary skill in the art may, by the same random happenstance, select a copolymer to be added to a given matrix which does not have any block that is the same as or compatible with the given matrix, e.g. PMMA-*b*-PBA-*b*-PMMA is selected to be added to a polystyrene thermoplastic. As noted above, adding PMMA-*b*-PBA-*b*-PMMA to a polystyrene thermoplastic will weaken the thermoplastic, i.e. PMMA-*b*-PBA-*b*-PMMA will not reinforce a polystyrene thermoplastic against impact.

Because Guerret and Fischer, alone or in combination, do not specifically teach or suggest that one of the blocks of the copolymer must be the same or compatible with the matrix to which the copolymer is added in order to reinforce the matrix against impact, the claimed invention is unobvious.

Applicants respectfully submit that the disclosures of Coran, Pourallmady and Billovits, alone or in combination, do not alleviate the deficiencies of Guerret and Fischer. In fact, as stated by the Examiner, “Coran is used solely for claim 32 for the amount of brittle matrix which spans the range of 10-85%” and “Pourallmady and Billovits have not been used for any teachings regarding a brittle matrix”. Clearly, Coran, Pourallmady and Billovits do not teach or suggest anything about whether one of the blocks of the copolymer must be the same or compatible with the matrix to which the copolymer is added in order to successfully reinforce the matrix against impact.

Since none of the cited documents teaches or suggests that one of the blocks of the copolymer must be the same or compatible with the matrix to which the copolymer is added in order to successfully reinforce the matrix against impact, Applicants respectfully urge that the claims unobvious and the rejection under 35 U.S.C. 103(a) should be withdrawn.

Request for Interview

Applicants respectfully request either a telephonic or an in-person interview should there be any remaining issues.

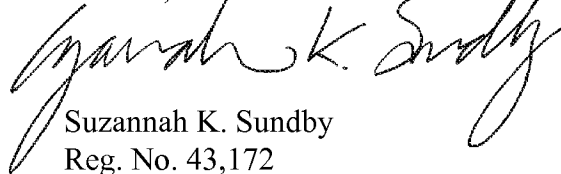
CONCLUSION

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Therefore, it is respectfully requested that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. However, in the event that additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. 1.136(a), and any fees required therefor are hereby authorized to be charged to **Deposit Account No. 02-4300, Attorney Docket No. 033808R197.**

Respectfully submitted,

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